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Financing Patterns Around the World

The Role of Institutions

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Abstract

Using a firm-level survey database covering 48 countries, Beck, Demirgüç-Kunt, and Maksimovic investigate whether differences in financial and legal development affect the way firms finance their investments. The results indicate that external financing of investments is not a function of institutions, although the form of external finance is. The authors identify two explanations for this. First, legal and financial institutions affect different types of external finance in offsetting ways. Second, firm size is an important determinant of whether firms can have access to different types of external finance. Larger firms with financing needs are more likely to use external finance compared with small firms. The results also indicate that these firms are more likely to use external finance in more developed financial systems, particularly debt and equity finance. The authors also find evidence consistent with the pecking order theory in financially developed countries, particularly for large firms.

This paper—a product of Finance, Development Research Group—is part of a larger effort in the group to understand firms' access to financial services. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Kari Labrie, room MC3-456, telephone 202-473-1001, fax 202-522-1155, email address klabrie@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at tbeck@worldbank.org, ademirguckunt@worldbank.org, or vmaksimovic@rhsmith.umd.edu. October 2002. (54 pages)

FINANCING PATTERNS AROUND THE WORLD: THE ROLE OF INSTITUTIONS

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1. Introduction

Both the theoretical and the empirical literature in corporate finance demonstrate that financial market imperfections constrain the availability of external financing. Cross-country comparisons have shown that access to external financing is shaped by the country's legal and financial environment (La Porta, Lopez-de-Silanes, Shleifer, and Vishny (LLSV), 1997, 1998; Demirguc-Kunt and Maksimovic, 1996, 1998, 1999; Booth et al 2001, Rajan and Zingales, 1995, 1998, Wurgler 2001).[1] Studies show that in countries with weak legal systems, and consequently weak financial systems firms obtain less external financing, in particular less term financing, so that their growth and investment efficiency are reduced.

In this paper we ask whether the strong relation between external financing and country's financial and legal institutions in the literature holds when we consider a broader spectrum of external financing sources and our more representative sample of firms How do the country's institutions affect whether a firm uses a specific type of external financing, and if so, how much it uses? Do the results for large firms carry over to small firms? Is the cross-country evidence consistent with pecking order of financing sources, so that equity financing is consistently "costlier" even in countries with developed institutions?

While the firm-level empirical results in the existing literature are plausible and consistent with corporate finance theory, the relatively narrow evidence on which they

[1] Carlin and Mayer (1998) argue that there exists a relation between a country's financial system and the characteristics of industries that prosper in the country. The importance of institutional development for investment is demonstrated by Wurgler (2000) and Love (2000), who show that the flow of capital to good investment projects increases with financial development. At the macro level, King and Levine (1993), Levine and Zervos (1998) and Beck, Levine and Loayza (2000) show that financial development promotes growth and that differences in legal origins explain differences in financial development.

are based often does not support the general inferences that seem to follow naturally from the results. Due to data limitations, the studies compare the largest, and perhaps unrepresentative, firms across countries. The definitions of external financing used focus on equity and external debt, and do not take into account the possibility that in some countries firms may substitute other forms of financing. Although these studies investigate access to external capital, they do not model the firm-level self-selection that occurs when access to a particular source of financing differs across countries.

We address these issues using a new data source, the World Business Environment Survey (WBES), a major cross-sectional firm level survey conducted in developed and developing countries in 1999 and led by the World Bank. One of the important strengths of the survey is its coverage of small and medium enterprises; eighty percent of the observations are from small and medium firms. Firms in the sample directly report on financing obstacles they face.

Our results show that, with a more representative sample of firms in each country and a more inclusive definition of external finance, the proportion of investment financed externally by firms cannot be explained by the substantial differences we observe in the legal systems and financial institutions across countries. Firms in less developed systems substitute alternative forms of external financing for those used more prevalently in developed countries: Thus, for equity and bank loans they substitute trade credit and what we term "other" or residual sources of financing, that is funding from miscellaneous sources such as the government, development banks and informal sources.

Financial and legal institutions do significantly affect the type of external financing that firms obtain. Consistent with the earlier literature, such as LLSV (1997)

and Demirguc-Kunt and Maksimovic (1998) on large firms, firms in common law countries have greater access to bank and equity finance. These firms also use a lower proportion of suppliers' credit and residual sources to finance their investment. Firms in countries with better-developed banking systems are less likely to use equity finance. Developed legal systems increase the proportion of bank finance and lower the proportion of residual financing from other sources in the financing mix of firms. We also see that these other sources and trade credit play a larger role in the financing of investment in countries with less developed institutions. Thus, part of the reason why we do not see a positive relationship between institutional development and external finance is because institutions affect different sources of finance differently.

Our results also suggest that firms in less developed financial systems and in civil law countries substitute less efficient forms of external finance, trade credit and other sources of funds, for bank loans and equity. This is consistent with the findings in the earlier literature that firms in such countries use less long-term external finance and appear to grow more slowly.

Using firms' reports of financing obstacles, we find that for most firms access to external financing is costly: firms are either shut out of the market for external financing or there is a positive relation between the use of external finance and the financing obstacles firms face. However, institutions have an important role to play in this relation. Indeed, firms that report higher financing obstacles are less likely to be self-financed and more likely to use external finance in more developed financial systems. Again, we see differences based on the type of financing and the size of the firm that needs it. Large firms use bank and equity finance despite evidence that it is costly. Smaller firms find it

more difficult to access the financial system to obtain debt and equity for all levels of institutional development.

Finally, we examine whether a hierarchy or pecking order of financing sources exists in different institutional settings and for different firm sizes. Myers and Majluf (1984) argue that financial market imperfections make it costly for firms to obtain external financing. Consistent with pecking order theory, we find evidence that equity financing is costlier than debt financing for large firms and firms in financially developed countries. We obtain more ambiguous results for small firms and firms in less developed countries, but the evidence is consistent with these firms having little access to equity markets. Overall, the predictions of the Myers and Majluf pecking order seem to hold up well for larger firms with access to well developed financial institutions.

The rest of the paper is organized as follows. In Section 2 we discuss the motivation for the analysis. Section 3 discusses the data and summary statistics. Section 4 discusses the empirical methodology. Section 5 presents our main results. Section 6 has conclusions and policy implications.

2. Motivation and Methodology

Existing studies of firm financing have several important limitations. First, they are based on linear statistical models that do not allow for firms in different countries to have a pecking order of financing preferences. Second, they define external financing narrowly. Third, the firms examined are some of the largest firms in country, so that the results may not be representative of their economies.

The empirical specifications in the papers on firm-level financing assume a linear model. Thus, countrywide institutional and legal factors are assumed to cause firms to increase or decrease leverage around some "target," analogously to the way taxes and bankruptcy costs affect leverage in static-tradeoff models of capital structure.[2] This contrasts with pecking order theories that posit that firms prefer to use some sources of financing over others, and that in order to finance an investment they tend to use the preferred source more heavily before they access a less preferred source (see Myers and Majluf (1984) for a hierarchy of sources based on differences in adverse selection costs in the equity and debt markets.

If there exists a pecking order of financing choices, either for the reasons suggested by Myers and Majluf (1984) or because the uneven development of a country's financial institutions makes some forms of financing more efficient than others, then a linear model may be biased. Consider the firm's choice of external financing as a two-step process. First, the firm decides to access a particular source of financing, and second, it chooses the proportion of investment to finance from that particular source. The considerations that determine the two choices may be very different. Thus, for example, a particular source of financing, say debt financing for a service industry firm, may not be optimal for funding investment, and such a firm may not attempt to obtain any debt financing. As a result, the state of financial and legal institutions in its country may not be germane in explaining its lack of debt. Including this firm in a simple regression with the debt level as a dependent variable and institutional variables as explanatory variables on the right hand may introduce biases. A similar potential for bias might arise if there exists

[2] There is an active debate on precisely how the legal system affects the financing of firms. See, for example, LLSV (1998, 2000), Rajan and Zingales (1999), Pistor (1999), Modigliani and Perotti (1998), and

a fixed cost of choosing a particular form of financing, perhaps due to obstacles stemming from underdeveloped institutions in the country, or from the firm's characteristics (e.g., a small firm might be shut out of the public market for equity if the fixed cost of equity issuance is high). In such cases there might be a discontinuity in the firm's use of a particular type of financing. It might avoid that form of financing until its benefits reach a critical threshold, at which point the firm might use it heavily.

In analyzing financing choices, the literature defines external finance narrowly, focusing on bank debt, long-term debt and equity finance. Theory suggests that firms in countries with strong legal systems, in which property rights, and in particular the rights of investors, are enforced are likely to rely on these types of external finance. In countries with weaker legal systems we would expect substitute forms of external finance, such as informal and trade credit and international development bank investment, to be used. Thus, a narrow definition of external financing that does not take into account other forms of financing might overstate both the constraints on external financing available to firms in less developed countries and the importance of legal development for the financing of firms in these countries.[3]

Due to data limitations, firm-level cross-country studies of financing restrict their samples to large listed firms. However, such firms are not typical of their economies. A priori, it is not clear whether in countries with weak legal systems such firms are more or less likely to be at a disadvantage relative to other firms. Since larger firms coordinate larger numbers of employees and more capital, they are likely to require more

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Stulz and Williamson (2001).

[3] In some countries these informal financial systems are prevalent and economically significant. For example the amount of foreign transfers through the [informal] hawala system in Pakistan, estimated by the

sophisticated corporate governance systems and greater access to long-term financing. This suggests that that studies that focus on these firms overstate the importance of well-developed institutions to the average firm. However, it is also possible that the largest firms may be those more adapted to their country's economy due to factors such as political connections or because their industry has a comparative advantage in its economy. This suggests a degree of "convergence" between the largest firms across countries.[4] A priori, we do not know which of these two effects predominates, and whether existing studies accurately measure differences in the ability of representative firms to raise capital across economies.

A key issue in comparing access to long-term financing across countries is to identify firms, which have an external financing need. Since the firm's external financing need is not generally observed, it must be inferred. While there are several alternative methodologies for identifying firms that have investment opportunities that cannot be funded internally, their power in isolating firms of different sizes across countries has not been established.[5]

In this paper, we use a two-stage model of the financing process and data from the World Business Environment Survey (WBES) to address these shortcomings. The WBES is a unique survey that has information on financing choices for close to 3000 firms in 48

Minister of Finance to be between $2 billion to $5 billion annually, exceeds the amount transferred through the country's banking system (*New York Times*, October 3, 2001).

[4] Demirguc-Kunt and Maksimovic (2002) find that a large proportion of the largest firms in countries with weak financial systems are not financially constrained.

[5] Fazzari, Hubbard, and Petersen (FHP) (1988) interpret firms to be financially constrained if they are observed to have a high correlation between long-term investment and internal financing, after controlling for investment opportunities. See Kaplan and Zingales (1998) for a critique of the FHP methodology and FHP (1999) for a response. Demirguc-Kunt and Maksimovic (1998) rely on a financial planning model to obtain the maximum growth rate firms can attain without access to external finance. If they are actually growing faster than this predicted rate, this reveals that they are externally-financed and potentially

countries. This database has a number of advantages.[6] First, the survey covers how firms finance their investment in detail. We have information on what proportion of investment is financed externally, and whether this financing comes from debt, equity, suppliers' credit, leasing, and other sources such as development banks, moneylenders, public sector or other informal sources. Second, eighty percent of the surveyed firms are small and medium enterprises. This is critical since the database allows us to investigate a population of firms we have not been able to study before. Third, the survey also provides detailed information on whether the firms perceive financing issues to be obstacles to their growth. Thus, these reports provide a direct proxy for the firms' financing needs.

The WBES data allows us to ask the following questions:

- Is the proportion of investment financed externally from all sources dependent on a country's financial and legal institutions?
- How do the country's institutions affect whether a firm uses a specific type of external financing?
- How do a country's institutions affect the proportions of different types of external financing by firms that use them?
- Do differences in institutions affect the financing of large and small firms differently?
- Is there evidence of a pecking order of financing types? If so, does the pecking order depend on the country's institutions?

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constrained. Rajan and Zingales (1998) use external finance use in U.S. industries as benchmark to determine external financing needs.

To address these questions we decompose the financing decisions of firms into two stages, the decision to access a form of financing, and, if the firm does so, the decision on how much to obtain. In our statistical specification, described below, we use Heckman's two-stage estimator to allow for the fact that firms self-select to obtain a particular form of financing.

Consistent with the empirical tests of the pecking order theory using US data by Shyam-Sunder and Myers (1999), and Frank and Goyal (2001), we recognize that the firm may attempt to meet its financing needs by using sources of financing sequentially. While these studies focus on the United States, we allow for the possibility that institutions in each country might favor a certain type of financing and that access to other markets may be difficult. Thus, we do not necessarily expect the classical pecking order to hold across the sample and initially do not impose such an ordering. However, having established differences in the access to financing, in Section 5 we examine whether the data are consistent with a pecking order theory of Myers and Majluf (1984). Our tests of the classical pecking order differ from those of Shyam-Sunder and Myers (1999) and Frank and Goyal (2001) in that these papers test whether firms issue debt or equity to fund their external financing need. By contrast, the firms in our data set do not report the value of their external financing calculated from financial statements. Instead, they provide qualitative reports of the extent to which they face financing obstacles and we directly relate these reports to the likelihood that a firm issues a debt or equity to fund its investment.

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[6] A detailed discussion of the data base is provided in next section. Clarke, Cull and Martinez Peria (2001) and Beck, Demirguc-Kunt and Maksimovic (2001a) also use this data set. See Graham and Harvey (2001) for a recent application of the survey methodology to corporate finance.

3. Data and Summary Statistics

The firm level data is from the World Business Environment Survey (WBES), a major cross-sectional survey conducted in developed and developing countries in 1999 and led by the World Bank. Information on financing patterns is available for nearly 3000 firms in 48 countries.[7] The main purpose of the survey is to identify obstacles to firm performance and growth around the world. Thus, in addition to financing patterns, the survey has information on the perceived financing obstacles firms face. The survey also includes data on firm employment, sales, industry, growth, ownership, and whether the firm is an exporter or has been receiving subsidies from national or local authorities.

An important strength of the survey is its wide coverage of small and medium firms. The survey covers three groups of firms. Small firms are defined as those with 5 to 50 employees. Medium firms are those that employ 51 to 500 employees and large firms are those that employ more than 500 employees. Forty percent of our observations are from small firms, another forty percent are from medium firms and the remaining twenty percent are from large firms. Table AI in the Appendix reports the number of firms for each country in the sample.

In Table I we summarize relevant facts about the level of economic and institutional development in the sample countries. Details of sources are in the Appendix. Country level variables are 1995-1999 averages. For each country we present data on GDP per capita, growth rate of GDP and inflation. In addition, we present an indicator of financial system development commonly used in the literature: the ratio of

[7] The survey actually covers 80 economies, but the sample is reduced because of missing firm-level observations or country information.

credit issued to the private sector by deposit money banks and other financial institutions to the GDP. This indicator, Privo, is defined and discussed in Beck, Demirguc-Kunt and Levine (2000).

To capture the extent of legal development, we use an index, produced by the International Country Risk rating agency, that reflects the degree to which the citizens of a country are willing to accept the established institutions to make and implement laws and adjudicate disputes. The index, Laworder, is scored between 1 and 6, with higher values indicating sound political institutions and a strong court system. Finally, we also use Common, which is a dummy variable that takes the value one for countries with common law origin, and zero otherwise. Common law countries are shown to have better legal protection for outside investors, as discussed in La Porta, Lopez-de-Silanes, Shleifer and Vishny (1998).

Inspection of Table I reveals that there is a great deal of economic and institutional variation in the sample countries. The per capita income ranges from Haiti, with an average GDP per capita of 369 dollars to U.S. and Germany, with per capita income of over $30,000. We also provide the average annual growth rate of per capita GDP as a control variable. If investment opportunities in an economy are correlated, there should be a statistical relation between the growth rate of the economy and the external financing need and financing patterns of individual firms. Average inflation rate also provides an important control in that it is an indicator of whether the local currency provides a stable measure of value in contracting. The countries also vary significantly in the rate of inflation, from a low of zero percent in the cases of Sweden and Argentina, up to 86 percent in the case of Bulgaria.

Column 4 of Table I shows the reported firm-level financing obstacles averaged over all firms sampled by WBES in each country. In the WBES, enterprise managers were asked to rate how problematic were financing issues for the operation and growth of their businesses. The ratings were quantified by assigning them values: 1, no obstacle; 2, minor obstacle; 3, moderate obstacle; and 4, major obstacle. As Table I illustrates, in general the obstacle tends to be lower in developed countries such as the U.K. and the U.S. compared to those in developing countries.

One potential problem with use of survey data is that enterprise managers may have different perceptions about obstacles and may rate equivalent obstacles differently. For example, managers may evaluate obstacles relative to their own prior experience or relative to the experiences of similar firms in their own country. This may make it more difficult to observe a systematic relation between the obstacles firms report and their financing decisions. However, Beck, Demirguc-Kunt, and Maksimovic (2001a) show that reported obstacles are significantly related to the firm's growth rate.

In the last two columns we report our financial and legal development indicators. Credit provided by financial institutions to the private sector divided by GDP, Privo, and the index of legal development, Laworder, are both higher in more developed countries. We expect firms in these countries to have better access to external finance. In some of the specifications we report below we also measure access to publicly traded equity markets by the ratio of stock market capitalization to GDP, Mcap.[8]

Table II reports firm-level financing patterns averaged over all firms in each country. In the WBES, enterprise managers were asked to report how much of their

[8] Demirguc-Kunt and Levine (1996) discuss the properties of alternative measures of stock market development and present comparative summary statistics.

investment they finance from different sources over the last year. The sources are internal financial sources such as retained earnings or funds from family and friends, and external financial sources, such as equity, local commercial banks, foreign banks, suppliers credit, leasing arrangements, development banks, moneylenders, or other informal sources. The sum of these proportions adds up to one hundred.[9]

We categorize the different sources of external financing into four groups. "Bank finance" includes financing from local and foreign banks. "Equity finance" is financing through sale of stock. We group trade credit and leasing finance under "operations finance." Finally, finance from development banks, moneylenders, public and other sources are grouped into a residual category, "other finance."

As Figure 1 and the first column of Table II show, in most countries including developed ones such as the U.S., U.K. and Germany, firms use internal resources to finance over 50 percent of their investment. These figures are somewhat puzzling since firms in quite a few developing countries- such as Colombia, Malaysia, Poland and others use more external finance than firms in the U.S., where financial and legal development is one of the highest rated. It is not surprising that in some transitional countries with poorly developed institutions such as Armenia and Azerbaijan internal financing of investment can be as high as 90 percent. However, in the other extreme there are countries such as Italy and Trinidad and Tobago where internal financing is at about 30 percent.

Looking at different financing sources is informative since countries with similar overall external financing proportions can have very different financing patterns. For example, firms in Nicaragua and Malaysia appear to have similar financing patterns if

[9] For a few firms, the sum were either greater or less than one hundred. These observations were omitted.

one looks at only the external financing proportion. However, Nicaraguan firms finance a large proportion of their investment using funds from development banks and miscellaneous other sources, whereas Malaysian firms use ten times more equity. Thus, a cursory examination indicates that in countries where bank and equity financing comprise a lower fraction of external finance, firms rely more on operations finance and other residual finance.

Table II shows that the most common source of external finance is bank finance followed by operations finance. But patterns of finance vary with firm characteristics, as can be seen in Table III, which reports the sample statistics of the variables we consider and their correlations. Small firms tend to rely on internal finance to a greater extent, with lower proportions of bank and other finance. It is expected for smaller, less established firms to have difficulty accessing public markets and banks, but these figures also provide evidence that finance from public sources also go to mostly larger firms. There are also differences among industries. Manufacturing firms are the greatest users of external finance, particularly bank finance.

Subsidized firms utilize more external finance, mostly through bank and other (including state) sources. Similarly government firms receive more external finance, mostly from other sources. Foreign firms utilize more external finance, and make greater use of bank finance and less operations finance compared to domestic firms. Since these tend to be well-established companies, they probably have access to international financial markets. Growing firms tend to use more external finance in the form of equity finance.

As expected, the proportion of investment externally financed is higher in richer, growing countries with low inflation, and developed financial systems. External finance is also higher in common law countries and lower in transition economies. This is because common law countries tend to have more developed financial systems and better protection of investor rights whereas countries that transition from centralized to market economies are still in the process of developing their financial systems.

Looking at individual financing sources, bank and equity finance are higher in richer, high growth, low inflation countries. Development of financial institutions is correlated with bank finance, but not equity finance. Better legal development is associated with more equity finance but less bank and operations finance. As in the case of external finance, common law countries are more likely to utilize bank and equity finance. Transition countries are more likely to use equity finance compared to other sources. Other finance is a common source for large, subsidized, government firms and is less likely in common law countries where both banking and capital markets tend to be well developed.

Finally, the correlations with firm-level financing obstacles indicate that firms that use operations and other finance report higher obstacles, whereas those that use equity finance report lower obstacles.

Panel C of Table III provides correlations among independent variables. As expected, richer countries have more developed financial and legal systems and firms in these countries report lower financial obstacles. Also, financial obstacles are higher for small, manufacturing firms, that are not growing. They are lower for private, foreign, and exporting firms. They are also lower in common law countries which generally have

high levels of financial and legal development. These are consistent with the findings of Beck, Demirguc-Kunt and Maksimovic (2001a).

4. The Empirical Model

Because the decision to obtain external financing or a particular form of financing is endogenous, estimates of the relation between the quantity of external financing and firm characteristics are potentially biased unless they take into account the fact that firms that obtain external financing are self-selected. We control for this bias using Heckman's two-step procedure. Specifically, we first estimate a selection equation where we obtain the firm's probability of getting external finance (or in other specifications, a particular form of outside financing). We then use this estimate at the second stage, where we analyze the relation between the financing mix and firm and country characteristics.

The selection or access equation is given by:

$$\text{Financing dummy} = \alpha + \beta \text{ Firm Characteristics } + \gamma \text{ Macroeconomic factors } + \delta \text{ Institutional factors} + \varepsilon. \quad (1)$$

The dependent variable is a dummy variable which takes the value 1 for firms that have external finance (or, in some specifications, a specific financing source) and 0 for those who do not. The regression also includes firm and country level controls.[10] Firm level variables identify the firm's ownership, type of business, industry, size and growth rate. Specifically we include dummy variables for government-owned firms, foreign firms, exporting firms, and subsidy receivers. We also include dummy variables for manufacturing firm and those in the service industry. To control for firm size, we include

[10] The use of similar control variables is standard in the literature. For a discussion Demirguc-Kunt and Maksimovic (1998, 2001).

dummy variables that identify the firm as a small or medium firm. We also include firm growth rate, which is given by sales growth of the firm. Finally, we include the firm's perceived financial obstacles, as reported in the WBES survey. According to the pecking order theory, firms that go to the market for external finance are expected to have a higher financing need and are therefore likely to face higher financing obstacles.

Macroeconomic control variables are the GDP per capita, its growth rate, and the rate of inflation. We also include a dummy variable in the access equation to indicate whether the country belongs to the group of countries that are transitioning from a centralized to market system. Finally, we include variables to capture the impact of financial and legal development of the country. These are Privo, Laworder and Mcap. We also include a dummy variable to indicate whether the country has a common law system. In the second-stage we estimate how the firm's current investment is financed using the following regression:

$$\text{Financing proportion} = \alpha + \beta \text{ Firm Characteristics} + \gamma \text{ Macroeconomic factors} + \delta \text{ Institutional factors} + \varepsilon. \quad (2)$$

The dependent variable is the proportion of investment financed through external finance or different external financing sources, respectively. The independent variables are as in the selection equation, with two exceptions. First, the reported firm level financial obstacle does not enter the financial proportion equations since we do not expect the reported obstacle to affect the mix of financing beyond the selection of a specific financing source. Second, we exclude the dummy variable indicating whether

the country belongs to the group of countries that are transitioning from a centralized to market system.[11] These restrictions allow us to specify the Heckman model.

Estimating the two regressions separately would lead to biased results since the two error terms are likely to be correlated. Thus, following Heckman's two-step procedure, we first obtain the estimates of the selection equation. From these estimates the nonselection hazard (inverse of the Mill's ratio) is computed for each observation.[12] The two-step parameter estimates of the equation 2 are obtained by augmenting the regression equation with the nonselection hazard. This allows us to obtain consistent estimates of the error variance in equation 2 (Φ^2), and an estimate of the correlation between the two disturbances (Δ). Finally, the selectivity effect is generally summarized by 8, which equals $\Delta\Phi$.

The interpretations of the coefficient estimates in the two equations differ. The coefficients of the selection equation show which country and firm characteristics are associated with the use of a source of financing to fund investment. The coefficients of the mix equation show which variables influence the proportion of a source that is used, given that the firm has selected that source. Since the firm may decide to use a particular source because institutional and legal constraints prevent it from using a different source, there is no necessary direct relation between the amount of a source used and its suitability for funding long-term investment. Rather, the coefficients of the proportions equation are descriptive, and should be interpreted together with the coefficients of the access equation.

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[11] Including the transition dummy in the proportion equations does not lead to significant coefficients, or different conclusions regarding the other variables in the model. Excluding it from the proportion equation does improve the overall fit of the model, however.

Using this basic model, we also explore a number of questions. First, we investigate whether a firm's total use of external financing depends on its characteristics and on its country's legal and financial institutions.

Second, replacing the total proportion of investment financed externally with the proportion financed using a specific financing source allows us to explore financing patterns from individual sources such as bank, equity and operations finance. As we can see in Table II, it is possible for overall external financing to be similar in countries with very different financing mixes.

Third, we investigate if institutional development affects financing patterns of different size firms similarly. To do that we create three dummy variables, small, medium, large. These variables take the value 1 if the firm is small (or medium or large) and zero otherwise. Then we interact the size dummies with the relevant institutional variables and financing obstacles. In this way, it is possible to see if external financing choices of different size firms are affected differently with institutional development or financing needs.

Fourth, we investigate the impact of institutional development on the relation between the firm's use of external capital and the obstacles to financing it reports. If a firm has very little need for external finance, either because it has sufficient internal resources or has few growth opportunities, it will self-finance its investments and have very low perceived obstacles. If however, the firm's demand for external finance increases, the firm will try to access external financing markets, and will face a higher

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[12] This is given by $m_j = N(x_j\exists)/M(x_j\exists)$ where N is the normal density and M is the standard cumulative normal, and $x_j\exists$ refer to the right hand side of the selection equation.

level of financing obstacles. Thus we use perceived obstacles as a proxy for the cost of marginal external financing it would like to obtain.

At the equilibrium amount of external financing that the firm obtains, the cost of a marginal dollar of external financing will equal or exceed the cost of not obtaining the needed financing. We expect developed financial and legal institutions to ease the movement from internal to external finance. Thus, for firms in these countries the marginal costs of external financing and the marginal costs of not obtaining further financing are equalized at a point where they obtain external financing. As a result, in countries with better-developed institutions, hence higher Privo and Laworder, we expect firms' use of external finance to increase with an increase in financing needs, so that there exists a positive relation between the reported financing obstacle and the firm's use of external financing.

In countries with less developed institutions, financing needs can increase without a corresponding increase in external financing, so that there is no relation between the firm's reported obstacle and the amount of external financing it uses. Thus, under the hypothesis that institutional development eases the acquisition of (a specific source of) capital we expect the interactions of institutional variables with the financing obstacles to develop positive coefficients in the access equation. A similar argument suggests that there may be a positive relation between the reported financing obstacle and, say, the amount of equity financing that a large firm uses, but no corresponding relation for small firms. To investigate further whether these relations are different for different size firms, we can interact firm size with the financial obstacle variable and the institutional variables.

To test whether the existence of a pecking order of financing sources is related to firm size and the development of a country's institutions we follow a similar approach. We begin with a sample of firms that finance at least a portion of their investment with bank loans. We then examine the relation between the probability that the firms also issue equity and the level of financing obstacles reported by the firms. As before, an absence of a relation between these variables is uninformative because it is consistent both with an absence of a pecking order and with a pecking order where the costs of issuing equity are so high that only a few firms do so. However, a positive relation is consistent with a pecking order where firms balance the cost of additional equity issues with the cost of foregoing investment. Supporting evidence is again provided by interacting the financing obstacle with the institutional variables. The case for the existence of a pecking order is stronger if the positive relation between equity issuance and the financing obstacle variable is stronger when the institutions are well developed.[13]

5. Results

Table IV shows the relation between financing patterns and firm and country characteristics, including institutional factors. In Panel A, for each financing source we estimate an access equation which helps us identify the factors that determine firms' use of external financing or of a particular source of finance. We define external finance as consisting of bank, equity, operations and other finance. The corresponding financing proportion equations reported in Panel B indicate the significant factors in the proportion

[13] A firm facing a cash shortfall may raise money to cover the losses rather than fund new investment projects. While the pecking order theory also applies in this case, the need to monitor such firms intensively suggests that their financing is affected by factors not addressed by the theory. These cash shortfalls are more likely to occur in smaller, riskier firms.

of current investment externally financed, or by the mix of different financing proportions corresponding to each financing source.

The most striking result in Table IV is that neither the use of external finance or the proportion of investment financed externally is determined by institutional factors. (the first specification in panels A and B). Indeed we see that financial or legal development are uncorrelated with external financing. These results are consistent with our earlier observation of the figures in Table II, where countries had similar levels of external finance, yet very different financing patterns based on their institutional development.

However, this finding contrasts with several earlier studies that find a relation between institutional development and the use of external finance by Demirguc-Kunt and Maksimovic (1998) and Rajan and Zingales (1998). One possible reason for the difference is that both of these studies used empirical designs that stressed the role of large firms. In the former study only publicly listed firms were considered, whereas the latter study weights large firms more heavily because a large firm affects industry growth rates more than a small firm. A second possible reason is that we include operations finance (such as trade credit) and residual financing sources, such as subsidized government financing, in the category of external financing. While these sources are not normally included in the U.S. studies of external financing, variations in operational and government financing may be potentially important when assessing differences in countries' financial systems.[14]

[14] Frank and Maksimovic (1998) argue that the equilibrium amount of trade finance relative to bank and equity financing is influenced by a country's legal and financial system. See Demirguc-Kunt and Maksimovic (2001) for cross–country evidence.

When we examine each of the four sources of external finance in turn, we find that institutional development does predict firms' use of different financing sources. The use of bank, equity and operations finance are more common in countries with common law legal origin, where outside investor protections are stronger. In countries with better-developed financial institutions firms are more likely to access other financing sources, and less likely to access equity finance. In countries with better developed legal systems firms are less likely to choose operations finance, since firms' use of bank debt relative to trade credit tends to be higher in countries with efficient legal systems (see Demirguc-Kunt and Maksimovic, 2001).

Panel A of Table IV also shows that firms which report greater financing obstacles are more likely to use external finance. This is consistent with our interpretation of firms with greater financing need reporting higher obstacles. We also see that firms reporting greater financing constraints are more likely to use each source of external finance to fund investment.

Overall, we see that different institutions are important in sometimes conflicting ways for different financing sources. In Panel B, the firms that use bank financing use a higher proportion of bank finance if their country has an efficient legal system[15], but lower proportions of "other financing" sources. In countries with well-developed financial institutions – high Privo - firms use a smaller proportion of equity finance, even after controlling for the fact that equity financing is less common in such countries. Finally, in common law systems with strong protection of investor rights, while more

[15] If we look at only large firms, Privo is positive and significant in the bank finance equation, consistent with Demirguc-Kunt and Maksimovic (1998) who analyze large firms.

firms have access to operations finance, they finance a lower proportion of their investment in this way.[16]

In contrast, the value of market capitalization relative to GDP, Mcap, does not predict the equity financing of investment by firms in our sample. While the existence of a large public market might be expected to lead to more equity financing, the role of the market in investment may dependent on the market's level of activity, which fluctuates over time and requires a time-series to capture.[17]

We also examine whether financing patterns vary with the per capita income of countries. The institutions of richer countries are more likely to adapt to funding modern commercial enterprises. As a result, per capita income is likely to proxy for aspects of institutional development that we do not measure explicitly.[18] Consistent with earlier results, Table IV shows that the use of external finance does not differ by country income. However, we again find differences in the use of different sources. In high-income countries, firms are more likely to issue equity in order to finance investment. Controlling for the likelihood of use of each source, in these countries firms rely more on equity and less bank debt to finance investment. These results are consistent with Myers (1977).

We also see that smaller firms are indeed less likely to use external finance than large firms, particularly the sources of external finance that depend on financial institutions, bank debt and equity finance. However, once we control for this tendency,

[16] Recall that we measure the proportion of investment financed by different external sources, not the absolute amount of a particular source used. Thus, this does not mean that the absolute amount of operational finance used is less.

[17] Since we lose a number of countries when we include Mcap, we ran the equity finance regressions also without Mcap, and obtained the same results.

we cannot reject the hypothesis that small firms, which do access bank and equity markets, fund the same proportion of their investment from these sources as larger firms. By contrast, small firms that use operations finance use it more intensively than other firms.

Table IV identifies several firm characteristics that predict differences in the ways investment is funded. Government firms are more likely to use bank and "other" finance. Subsidized firms are more likely to use "other" finance sources, suggesting that this form of financing may be a conduit for subsidies. Exporters are more likely to use bank and operations finance, and foreign firms are more likely to issue equity, but less likely to use operations finance. Manufacturing firms are more likely to use bank and operations finance but less likely to use equity financing.

Firms in growing economies are more likely to use all types of external financing to fund investment. High growth is associated with the use of more equity and less debt and operations financing, controlling for the use of each respective financing source. Similar, albeit somewhat weaker results hold for firm growth, once we hold the growth of the economy constant. These findings are consistent with Myers' (1977) conclusion that firms fund growth opportunities with equity, and suggest that Myers' analysis is quite robust and holds for firms in very different institutional settings.

As inflation increases, both the likelihood that a firm obtains external financing and the proportion of investment financed externally decline. Again, there are differences across sources of finance. Firms in high inflation countries are less likely to access bank loans and use a smaller proportion of loans in their financing mix. The opposite is true for

[18] The use of income as a proxy for institutional adaptation is justified here because we are predicting financing patterns of firms, and not attempting to identify specific institutional features that predict

equity finance, probably because equity provides better protection against inflation for investors.

We next explore whether these differences in financing between large and small firms arise because institutional development and financing needs result in different financing choices for large and small firms. To do this we interact the size dummies with the financing and legal development variables and financing obstacles in the access equation in Table V.[19]

Inspection of Table V reveals, first, that the relationship between access to external finance and financing need is more significant for the larger firms. For small firms, an increase in financial needs increases their external finance but we do not see any significant result looking at individual financing sources. For medium firms and particularly large firms, however, an increase in financing needs leads to a higher probability of access to all financing sources.

Second, as in Table IV, we see firms have greater access to bank, equity and operations finance in common law countries. In countries with developed legal systems firms are less likely to use operations finance. These results hold regardless of size differences. Small firms in countries with higher Mcap (financial institutions), obtain more (less) equity finance, suggesting that the access of the smallest firms to equity finance is affected by the size of the public equity markets relative to the size of the banking sector.[20]

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economic growth or high per capita income.

[19] It is also possible to explore the size breakdown for Privo and Laworder in the financing proportion equation, but estimating such a model does not reveal significant differences among size groups. Similarly, interacting Common with size dummies in either equation does not reveal significant differences among size groups.

[20] While the probability that smallest and largest finance some portion of their investment using bank debt is not affected by the size of the banking sector, the negative coefficient of Privo-medium is significant.

In institutionally more developed countries we expect firms with greater financing need to be more likely to choose external finance. Hence, we expect the relation between financing needs and access to external finance to be stronger in countries with more developed institutions.[21] Table VI reports the results obtained by re-estimating the model in Table V and adding interaction terms of financing obstacles with Privo and Laworder for different size groups.

We find that in countries with better-developed financial institutions, firms with a greater financing need are more likely to use external finance. When we look at individual financing sources, we see that this relationship holds for bank and equity finance, but not for operations and other finance. The relation is stronger for larger firms, particularly in the case of equity finance.[22]

The estimates in the preceding tables show that firms with a greater financing need are more likely to rely on external finance. However, thus far we have not imposed an a priori ordering of sources of external funding that predicts the sequence in which a firm accesses external finance. The pecking order theory of Myers and Majluf (1984) posits that adverse selection in the market for external finance makes it efficient for the firm to rely on internal and operations finance first, and when these sources are exhausted to borrow. The theory suggest that since equity is subject to the highest adverse selection costs, firms issue equity as a last resort.

Since it is a priori unlikely that bank development negatively affects medium size firm, but not larger and smaller firms, we do not interpret this coefficient except to note that such a configuration may occur by chance.

[21] In the extreme case of a very well developed financial system, we would find no correlation between financing needs and access in our. However, for most countries we expect to see an increase in financing obstacles as external financing needs increase.

[22] Interacting financing obstacles with stock market capitalization rather than Privo gives very similar results.

If the pecking order theory is correct, we would expect firms that issue equity to report higher financing obstacles than firms that do not. We would also expect firms in economies with good financial and legal systems to have lower costs in issuing equity than firms in countries with poorly performing financial and legal systems.

To test the pecking order theory, we create two variables. Variable Peck takes the value zero if the firm uses only bank or operations finance, and one if in addition to these sources it also uses equity finance to fund the current year's investment. Variable Peck2 uses a finer ordering where it takes the value zero if the firm only uses operations finance, 1 if it also uses bank finance, and 2 if it also uses equity finance. In creating both variables we drop those firms that only use other sources of financing. Then we estimate the following specification:

$$\text{Peck or Peck2} = \alpha + \exists\ \text{Firm Characteristics} + \gamma\ \text{Macroeconomic factors} + \delta\ \text{Institutional factors} + , . \quad (3)$$

We estimate the model using Logit or Ordered Logit Model depending on the dependent variable we use. If the pecking order theory holds, we expect the coefficient on financing obstacle to be positive and significant, i.e., the higher the firm level financing needs, the more likely the firm is to use equity finance.

Table VII reports the results of the model with Peck, using Logit probability model. As in the rest of the paper, we investigate the impact of institutional development and firm size on the validity of the pecking order theory. In column 1 we see that growing firms in fast growing, Common law countries with relatively small banking systems are more likely to finance investment with both equity and bank debt.

The negative relation between the size of the banking system and the probability of issuing equity holds across specification in Table VII. It is consistent with the notion that in counties with large banking systems firms with existing borrowing relations with bank substitute more bank borrowing for equity issuance.

The coefficient of the financing obstacle is not significant, indicating that for the sample as a whole financing need is not related to the probability of equity issuance. Thus, for the sample as a whole there is no evidence that firms trade-off higher equity issuance costs (as in Myers-Majluf (1984)) their financing need. To investigate whether this result is driven by firm size, in column 2 Privo, Laworder and Financing obstacles are interacted with size dummies, small, medium and large.

We see that the coefficient of financing obstacles develops a significant sign only for small firms. However, the coefficient is negative indicating that small firms with greater financing needs are less likely to use equity. Thus, this result does not lend support for the hypothesis that firms issuing equity trade off higher adverse selection costs against the benefit of relaxing high financing constraints.

In Column 3 we investigate whether the effect of the firm's reported financial obstacles on its probability of issuing equity depends on the development of the financial system. To this end, in Column 3 we augment the specification with a variable that interacts the firm's reported financing obstacles with Privo, the proxy for the development of the financial system. As before, we find no evidence that a higher reported financial obstacle implies that firms are more likely to issue equity. However, coefficient of the interaction term, Financial Obstacle*Privo, is positive and highly significant. Thus, firms with greater financing needs are more likely to issue equity if

they are in countries with well-developed financial systems. When we allow this interaction to depend on the size of the firm in Column 4 we further find that the positive relation between the issuance of equity and the financial needs of firms in countries with good financial systems only holds for large firms. Small and medium sized firms are not more likely to issue equity when they face greater financing need even in countries with well-developed financial systems.

In Table VIII we provide some robustness checks. In Panel A we introduce four additional variables into the analysis. These are Concentration, which is the concentration ratio of the banking system based on the largest five banks, State-owned, which is the proportion of banking system assets owned by the government, Corruption, which is an indicator of to what extent firms find corruption in bank officials constraining to their growth, and Restrict, which is an indicator of restrictions on bank activities. We see that the above results are robust to inclusion of these controls, in that we still see evidence consistent with pecking order in countries with developed financial systems, particularly for large firms. Among the controls, firms in countries with concentrated banking systems and greater activity restrictions are less likely to issue equity, whereas those in countries that are dominated by state banks are more likely.

In Panel B, we replicate the regressions in Table VII replacing Peck by Peck2 and use the Ordered Logit Model to estimate. The results are not significantly different using this specification either.

In sum, the hierarchy suggested by pecking order theory holds for large firms in countries with well-developed financial systems. For these firms there is a positive and significant relation between reported financial obstacles and the probability that the firm

issues equity. For small and medium firms, or for firms in countries with less developed financial systems a high financing need does not increase the probability that the firm issues equity. Indeed, there is some evidence that small firms that face lower financing obstacles are more likely to issue equity.

The control variables develop expected signs, consistent with earlier results. Growing firms in richer, faster growing countries use more equity finance. Firms in transition countries and those with common law systems use more equity finance. More developed financial systems and more efficient legal systems (for medium firms) lead to greater use of bank finance. Finally, foreign firms are more likely to use equity and manufacturing firms less.

6. Conclusions

In this paper we investigate two issues. The first is how firm financing patterns differ around the world. The second is how financial obstacles perceived by firms are related to their financing patterns. This allows us to test the pecking order theory of capital structure. In answering both questions, we focus on the impact of institutional development, particularly on legal and financial institutions and firm size.

Using a unique survey database that has good coverage of small and medium enterprises in 48 countries, we find that the external financing of firm investment is not a function of institutions. Firms appear to finance similar proportions of their investment using external financing regardless of institutional development. The difference is that in underdeveloped countries, they are less able to obtain debt and equity finance, therefore they use more operations finance or finance from other sources. In contrast, we see that the form of external finance is predicted by institutional development. Our results

indicate that legal and financial institutions affect different types of external finance differently.

We also see that firm size is a key determinant of whether firms can have access to different types of external finance. Our results indicate small firms with greater financing needs cannot obtain external finance as easily as larger firms because of access issues.

Looking at the reported firm-level obstacles and how they affect access to external finance in countries with different levels of institutional development, we find that in countries with better developed financial institutions, firms with higher financing needs are more likely to use external finance. This relation holds for bank and equity finance, especially for large firms, but not for operations finance and financing from residual sources. These findings are also consistent with the result that firms in countries with more developed institutions use bank and equity finance to a greater extent, whereas in institutionally underdeveloped countries operations finance and financing from residual sources substitute to offset the shortfall in external finance. Finally, we find evidence consistent with pecking order theory only in financially developed countries, and particularly for large firms.

Our results suggest a shift of focus in looking at institutional differences across countries. If the relationship between institutions and firm financing patterns hinge on firm size, determinants of optimal firm size deserve a closer look. Underdeveloped financial and legal systems can create costs by creating incentives for sub-optimal firm sizes which can have important implications for the relative size and development of the small and medium enterprise (SME) sector. Development institutions devote large

amount of resources to SMEs because they are believed to be crucial for economic growth and poverty alleviation. However underdevelopment of the financial and legal systems may be the reason it is optimal for firms to stay small, hindering SME growth. Better understanding these costs is crucial in designing policies for developing small and medium enterprises. Although these costs may vary across industries, they cannot be detected by industry level studies. We turn to this issue in Beck, Demirguc-Kunt and Maksimovic (2001b).

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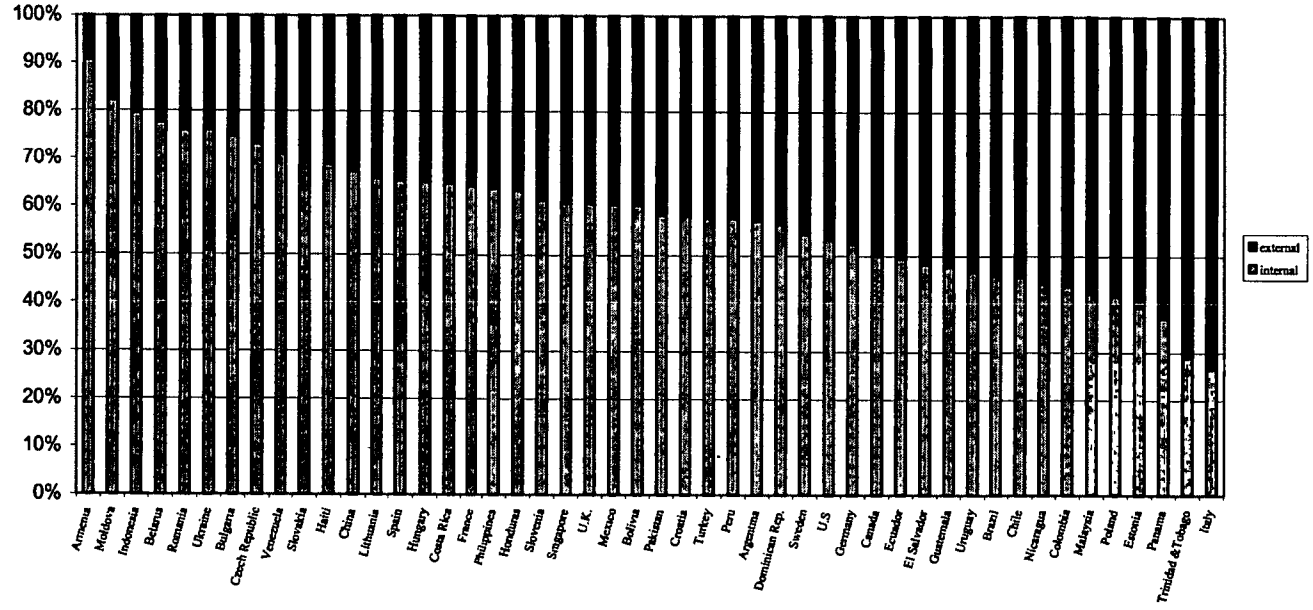

Figure 1. Financing Patterns Around the World. Internal finance is the proportion of investment financed by retained earnings and from family and friends. All other financing are considered external. Values reported are firm averages by country. Countries are ranked in descending order according to internal financing.

Table I
Economic and Institutional Indicators

GDP per capita is real GDP per capita in US$. Inflation is the log difference of the Consumer Price Index. Growth is the growth rate of GDP in US$. Privo is financial sector credit to private sector divided by GDP. Laworder is an index (1-6) that takes higher values for legal systems that are more developed. All country variables are 1995-1999 averages. Financing obstacles are general obstacles as indicated in the firm questionnaire. They take values 1 to 4, with higher values indicating greater obstacles. Firm variables are averaged over all firms in each country. Detailed variable definitions and sources are given in the appendix.

	Gdp/capita	Inflation	Growth	Finance Obs.	Privo	Laworder
Argentina	8000	0.00	0.02	3.14	0.21	5.00
Armenia	844	0.10	0.04	2.43	0.06	4.00
Bulgaria	1415	0.86	-0.02	3.17	0.14	4.00
Belarus	2235	0.71	0.07	3.25	0.06	4.00
Bolivia	939	0.06	0.01	3.08	0.51	3.00
Brazil	4492	0.07	0.00	2.73	0.32	2.05
Canada	20549	0.01	0.02	2.05	0.83	6.00
Chile	5003	0.05	0.03	2.30	0.68	5.00
China	677	0.02	0.07	3.35	0.85	5.00
Colombia	2381	0.16	-0.01	2.68	0.36	2.00
Costa Rica	3692	0.12	0.04	2.59	0.15	4.00
Czech Republic	5158	0.07	0.00	3.16	0.58	5.14
Germany	30794	0.01	0.01	2.61	1.06	6.00
Dominican Rep.	1712	0.06	0.06	2.57	0.24	4.00
Ecuador	1538	0.30	-0.02	3.19	0.30	3.36
Spain	15858	0.02	0.03	2.35	0.79	4.00
Estonia	3663	0.10	0.05	2.40	0.16	4.00
France	27720	0.01	0.02	2.81	0.84	5.00
U.K.	20187	0.03	0.02	2.30	1.16	6.00
Guatemala	1503	0.08	0.01	3.22	0.18	2.14
Honduras	708	0.16	0.00	2.93	0.26	2.05
Croatia	3845	0.05	0.05	3.28	0.00	5.00
Haiti	369	0.14	0.00	3.34	0.12	2.59
Hungary	4706	0.15	0.04	2.58	0.22	6.00
Indonesia	1045	0.20	-0.02	2.48	0.52	2.64
Italy	19646	0.02	0.01	2.04	0.57	6.00
Lithuania	1908	0.09	0.03	3.02	0.11	4.00
Moldova	668	0.18	-0.03	3.29	0.06	5.00
Mexico	3395	0.20	0.04	3.48	0.22	2.41
Malaysia	4536	0.03	0.01	2.62	1.31	4.59
Nicaragua	435	0.11	0.03	3.27	0.31	4.00
Pakistan	506	0.08	0.00	3.24	0.23	3.14
Panama	3124	0.01	0.02	2.13	0.78	3.00
Peru	2335	0.07	0.01	3.30	0.18	3.00
Philippines	1126	0.08	0.01	2.68	0.50	4.00
Poland	3216	0.13	0.05	2.49	0.12	5.00
Romania	1372	0.53	-0.02	3.29	0.09	4.77
Singapore	24948	0.01	0.02	2.03	1.11	6.00
El Salvador	1706	0.04	0.01	3.03	0.36	3.00
Slovakia	3805	0.07	0.04	3.45	0.30	5.00
Slovenia	10233	0.08	0.04	2.29	0.26	5.00
Sweden	28258	0.00	0.02	1.83	0.82	6.00
Trinidad & Tobago	4526	0.04	0.04	2.91	0.40	4.00
Turkey	2994	0.58	0.01	3.17	0.16	3.91
Ukraine	867	0.26	-0.03	3.49	0.02	4.00
Uruguay	6114	0.15	0.02	2.78	0.27	3.00
U.S.	29250	0.02	0.03	2.31	1.84	6.00
Venezuela	3483	0.40	-0.02	2.63	0.10	4.00

Table II
Financing Patterns Around the World

Figures given are firm averages for each country and they are the proportion of investment financed by each source. External finance includes financing from banks, equity, operations and other finance. Bank finance includes financing from domestic as well as foreign banks. Operations finance is the sum of leasing and supplier credit. Other financing includes financing from development banks, money lenders, public sector and other sources.

	External Finance	Bank Finance	Equity	Operations Finance	Other
Argentina	42.89	30.09	2.53	8.17	2.10
Armenia	9.48	3.19	0.95	1.86	3.48
Bulgaria	25.33	6.40	1.40	9.13	8.40
Belarus	22.40	4.88	1.39	5.42	10.71
Bolivia	39.56	24.39	0.93	9.40	4.84
Brazil	54.08	25.59	5.52	16.38	6.59
Canada	49.91	21.59	11.73	5.12	11.47
Chile	54.32	38.19	0.30	9.62	6.21
China	32.62	10.67	2.56	3.95	15.44
Colombia	56.26	28.59	0.81	14.31	12.55
Costa Rica	35.17	17.46	0.16	7.69	9.86
Czech Republic	26.85	10.17	0.80	6.93	8.95
Germany	47.41	14.30	19.85	1.43	11.83
Dominican Rep.	43.29	26.81	1.79	9.69	5.00
Ecuador	50.51	16.09	3.18	19.46	11.78
Spain	34.45	20.42	0.82	9.43	3.78
Estonia	60.58	20.02	15.88	15.25	9.42
France	35.65	10.80	6.67	11.02	7.17
U.K.	39.12	14.53	9.49	9.61	5.50
Guatemala	52.22	27.95	0.63	16.89	6.75
Honduras	36.47	20.29	0.81	8.68	6.69
Croatia	41.76	20.28	4.66	9.39	7.42
Haiti	31.18	11.41	1.76	3.65	14.36
Hungary	34.84	15.09	6.02	6.53	7.20
Indonesia	20.47	16.09	0.00	2.19	2.19
Italy	73.52	42.77	7.25	11.39	12.11
Lithuania	33.99	8.65	12.25	7.94	5.15
Moldova	17.88	7.27	0.30	6.58	3.73
Mexico	39.34	10.79	4.42	16.14	7.99
Malaysia	57.61	16.27	10.88	24.57	5.88
Nicaragua	55.86	17.17	1.78	16.38	20.53
Pakistan	41.55	29.62	4.66	4.34	2.93
Panama	62.81	45.34	1.39	8.65	7.43
Peru	42.19	25.69	0.85	10.05	5.60
Philippines	36.03	19.27	1.69	10.88	4.19
Poland	58.32	13.16	30.53	8.07	6.56
Romania	24.00	10.30	2.39	5.35	5.96
Singapore	39.07	24.07	7.13	6.02	1.85
El Salvador	51.67	26.72	3.85	14.20	6.90
Slovakia	30.88	11.34	1.22	11.83	6.49
Slovenia	38.54	16.98	3.38	10.46	7.71
Sweden	45.45	19.16	10.80	7.24	8.26
Trinidad & Tobago	71.04	37.26	15.68	15.49	2.60
Turkey	42.17	20.88	8.28	6.17	6.85
Ukraine	24.01	6.38	2.21	8.05	7.36
Uruguay	53.30	33.01	1.32	15.21	3.76
U.S.	46.46	20.33	3.04	10.59	12.50
Venezuela	29.16	15.16	3.04	7.12	3.84

Table III
Summary Statistics and Correlations

Summary statistics and correlation matrices are presented. N refers to firm level observations for 48 countries. Bank finance, Equity, Operations Finance, and Other Finance are financing proportions that stand for the proportion of investment financed externally, by bank debt, equity, operations financing and other sources. Financing obstacles are general obstacles as indicated in the WBES firm questionnaire. They take values of 1 to 4, where 1 indicates no obstacle and 4 indicates major obstacle. Firm size takes the value 1, 2, 3 for small, medium and large firms. Sector variable identifies manufacturing, services, construction, agriculture and other sectors. Firm growth is given by percent change in sales. Government and Foreign are dummy variables that take the value 1 if the firm has government or foreign ownership and zero if not. Exporter is a dummy variable that indicates if the firm is an exporting firm. Subsidized is also a dummy variable that indicates if the firm receives subsidies from the national or local authorities. Gdp/ capita is real Gdp per capita in thousands of US$. Inflation is the log difference of the Consumer Price Index. Growth is the growth rate of Gdp. Privo is the financial sector credit to the private sector divided by Gdp. Laworder is an index (1-6) that takes higher values for legal systems that are more developed. Transition is a dummy variable for transition countries. Common is a dummy variable that takes the value 1 for common law countries and zero otherwise. All country variables are 1995-1999 averages. Detailed variable definitions and sources are given in the appendix.

Panel A: Summary Statistics

	N	Mean	Std. Dev.	Min	Max
External Finance	2963	41.03	38.03	0	100
Bank Finance	2963	18.96	28.11	0	100
Equity	2963	5.49	17.28	0	100
Operations Finance	2963	9.48	19.07	0	100
Other Finance	2963	7.14	19.03	0	100
Financing Obstacle	2963	2.83	1.13	1	4
Firm Size – small	2963	0.39	0.49	0	1
Firm Size -medium	2963	0.42	0.49	0	1
Manufacturing	2963	0.40	0.49	0	1
Services	2963	0.47	0.50	0	1
Firm Growth	2963	0.14	0.56	-1	2
Subsidized	2963	0.12	0.32	0	1
Government	2963	0.12	0.33	0	1
Foreign	2963	0.18	0.39	0	1
Exporter	2963	0.41	0.49	0	1
Gdp/capita	48	6.82	8.89	0.37	30.79
Inflation	48	0.14	0.18	0.00	0.86
Growth	48	0.02	0.03	-0.03	0.07
Privo	48	0.43	0.39	0.00	1.84
Laworder	48	4.18	1.21	2	6
Common	48	0.15	0.36	0	1
Transition	48	0.31	0.47	0	1

Panel B: Correlation Matrix of Dependent and Independent Variables

	Small	Manufactur.	Subsidized	Government	Foreign	Exporter	Firm Gro	Gdp/capita	Inflation	Growth	Privo	Laworder	Common	Transition	Finan. Obs
External Finance	-0.178***	0.061***	0.097***	0.048***	0.068***	0.133***	0.046***	0.071***	-0.140***	0.095***	0.083***	-0.026	0.070***	-0.150***	0.026
Bank Finance	-0.191***	0.115***	0.036**	-0.030*	0.089***	0.141***	0.009	0.059***	-0.147***	0.036**	0.105***	-0.060***	0.079***	-0.226***	-0.014
Equity	0.016	-0.053**	0.004	0.001	0.023	0.027	0.057***	0.081***	-0.047***	0.140***	0.001	0.114***	0.057***	0.066***	-0.049***
Operations Finance	-0.028	0.019	-0.011	-0.012	-0.037**	0.041**	0.009	-0.013	-0.043***	-0.003	0.010	-0.065***	0.012	-0.038**	0.065***
Other Finance	-0.059***	-0.019	0.148***	0.152***	0.020	-0.007	0.019	-0.006	0.023	0.012	0.001	-0.003	-0.040**	0.013	0.051***

*, **, *** indicate significance levels of 10, 5, and 1 percent respectively

Panel C: Correlation Matrix of Independent Variables

	Small	Manuf.	Subsidized	Government	Foreign	Exporter	Firm Growth	Gdp/capita	Inflation	Growth	Privo	Laworder	Common	Transition
Manuf.	-0.2164***													
Subsidized	-0.1519***	0.0222												
Government	-0.2475***	0.0989***	0.1868***											
Foreign	-0.2030***	0.1095***	0.0199	-0.0166										
Exporter	-0.2466***	0.3556***	0.1144***	0.1250***	0.2073***									
Firm Growth	-0.0124	-0.0289	0.0065	-0.0364**	0.0451***	0.0900***								
Gdp/capita	-0.0264	-0.0793***	0.0871***	-0.0710***	0.1029***	0.0895***	0.0680***							
Inflation	0.0595***	0.0551***	-0.0213	0.1236***	-0.1002***	-0.0753***	-0.0285	-0.3470***						
Growth	-0.0043	-0.0102	0.0539***	0.0857***	0.0183	0.1383***	0.1341***	0.1391***	-0.3314***					
Privo	-0.0103	-0.0335*	0.0645***	-0.1525***	0.1349***	0.0452***	0.0189	0.7401***	-0.4267***	0.1151***				
Laworder	0.1143***	-0.0697***	0.0722***	0.1180***	-0.0114	0.0696***	0.0839***	0.5655***	-0.1562***	0.2951***	0.3584***			
Common	0.0176	-0.0376**	0.0338*	-0.0882***	0.0227	0.0622***	0.0197	0.4735***	-0.2286***	0.0665***	0.5911***	0.3120***		
Transition	0.1650***	-0.0439***	-0.0012	0.2859***	-0.1665***	-0.0057	0.0386**	-0.3373***	0.2903***	0.1249***	-0.4783***	0.3080***	-0.3041***	
Financial Obs.	0.0612***	0.0589***	-0.0097	0.0722***	-0.1481***	-0.0337*	-0.1035***	-0.2355***	0.1635***	-0.1374***	-0.1997***	-0.1195***	-0.1195***	0.1189***

*, **, *** indicate significance levels of 10, 5, and 1 percent respectively

Table IV
Determinants of Financing Patterns

The estimated two-step Heckman model is (1) Access Financing Source = $\alpha + \beta_1$ Government + β_2 Foreign + β_3 Exporter + β_4Subsidized + β_5Manuf. + β_6 Services + β_7 Firm Growth + β_8 Small + β_9 Medium + β_{10} GDP per capita + β_{11} Inflation+ β_{12} Growth + β_{13} Privo + β_{14} Laworder + β_{15} Common + β_{16} Transition + β_{17} Financing Obstacle + ε, and (2) Financing Proportions= $\alpha + \beta_1$ Government + β_2 Foreign + β_3 Exporter + β_4Subsidized + β_5Manuf. + β_6 Services + β_7 Firm Growth + β_8 Small + β_9 Medium + β_{10} GDP per capita + β_{11} Inflation+ β_{12} Growth + β_{13} Privo + β_{14} Laworder + β_{15} Common + ε. Access is a dummy variable which takes the value 1 for firms that use external finance (or different financing sources) and 0 for those who do not. Financing proportions are the proportion of investment financed externally, by equity, bank debt, operations financing or other sources. External finance is given by sum of bank, equity, operations and other finance. Bank financing includes domestic and foreign bank financing. Operations is given by the sum of supplier credit and leasing. Other sources include money lender, development banks, public sector and other financing. Government and Foreign are dummy variables that take the value 1 if the firm has government or foreign ownership, respectively. Exporter is a dummy variable that indicates if the firm is an exporting firm. Subsidized is also a dummy variable that indicates if the firm receives subsidies from the national or local authorities. Manufacturing and Services are industry dummies. Firm growth is given by sales growth. Small and Medium are dummy variables that indicate firm size. GDP per capita is real GDP per capita in US$. Inflation is the log difference of the Consumer Price Index. Growth is the growth rate of GDP in US$. Transition is a dummy variable for transition countries. Privo is the financial institutions' credit to the private sector divided by Gdp. Laworder is an index (1-6) that takes higher values for legal systems that are more developed. Common is a dummy variable that takes the value 1 for common law countries and zero otherwise. Mcap is stock market capitalization divided by GDP. Financing obstacle is the general financing obstacle as indicated in the WBES firm questionnaire. They take values of 1 to 4, where 1 indicates no obstacle and 4 indicates major obstacle. Panel A reports results of equation (1) and Panel B those of equation (2). Detailed variable definitions and sources are given in the appendix.

Panel A: Access	Access(external finance)	Access(bank debt)	Access(equity)	Access (operations)	Access (other)
Government	-0.026	-0.171**	-0.071	-0.107	0.319***
	(0.085)	(0.082)	(0.110)	(0.083)	(0.086)
Foreign	-0.096	-0.063	0.284***	-0.196***	0.114
	(0.070)	(0.066)	(0.084)	(0.067)	(0.073)
Exporter	0.253***	0.203***	0.067	0.233***	-0.053
	(0.058)	(0.055)	(0.074)	(0.056)	(0.062)
Subsidized	0.221***	-0.003	0.065	0.073	0.573***
	(0.086)	(0.078)	(0.097)	(0.077)	(0.078)
Manufacturing	-0.025	0.163**	-0.334***	0.150*	-0.107
	(0.083)	(0.081)	(0.108)	(0.082)	(0.088)
Services	-0.040	-0.001	-0.108	0.153**	-0.026
	(0.080)	(0.078)	(0.100)	(0.080)	(0.085)
Firm Growth	0.133***	0.074*	0.123**	0.118***	0.088*
	(0.045)	(0.044)	(0.061)	(0.044)	(0.048)
Small	-0.483***	-0.579***	-0.221**	-0.078	-0.185**
	(0.083)	(0.077)	(0.104)	(0.078)	(0.086)
Medium	-0.137*	-0.256***	-0.152*	0.109	-0.103
	(0.076)	(0.069)	(0.091)	(0.069)	(0.075)
GDP per capita	0.009	0.007	0.045***	0.006	-0.003
	(0.006)	(0.006)	(0.008)	(0.006)	(0.006)
Inflation	-0.383***	-0.506***	0.833***	-0.340**	0.261*
	(0.142)	(0.147)	(0.251)	(0.148)	(0.154)
Growth	3.491***	3.128***	9.875***	2.028**	1.901*
	(0.972)	(1.000)	(2.329)	(1.006)	(1.075)
Privo	-0.136	-0.175	-0.701***	0.028	0.449***
	(0.131)	(0.125)	(0.189)	(0.125)	(0.135)
Laworder	0.010	-0.007	-0.027	-0.110***	-0.023
	(0.038)	(0.036)	(0.054)	(0.036)	(0.040)
Common	0.082	0.210**	0.474***	0.237**	-0.171
	(0.113)	(0.103)	(0.123)	(0.101)	(0.115)
Mcap			0.162		
			(0.142)		
Transition	-0.391***	-0.556***	0.125	0.058	0.115
	(0.080)	(0.076)	(0.117)	(0.078)	(0.086)
Financing Obst.	0.102***	0.076***	0.058**	0.059***	0.111***
	(0.023)	(0.023)	(0.030)	(0.023)	(0.026)
χ^2	210***	208***	199***	108***	157***
No of obs.	2963	2963	2402	2963	2963

*, **, *** indicate significance levels of 10, 5, and 1 percent respectively.

Panel B: Financing Proportions

	External Finance	Bank Debt	Equity	Operations	Other
Government	5.890***	2.978	-5.864	5.809	16.691***
	(2.404)	(2.978)	(5.878)	(4.290)	(4.915)
Foreign	3.202*	2.181	11.614	5.680	0.332
	(1.971)	(2.059)	(7.961)	(5.120)	(3.287)
Exporter	-1.514	0.688	-2.416	-9.323	-4.818*
	(1.887)	(1.894)	(4.492)	(5.100)	(2.779)
Subsidized	2.098	1.244	-0.709	-6.495*	9.593*
	(2.354)	(2.434)	(5.443)	(3.986)	(6.384)
Manufacturing	2.765	-1.029	-16.531*	-4.587	0.582
	(2.398)	(2.774)	(10.168)	(4.846)	(4.066)
Services	4.264*	-0.110	-10.069*	-3.141	4.633
	(2.338)	(2.646)	(6.097)	(4.682)	(3.808)
Firm Growth	-1.277	-2.023	-1.942	-6.420**	2.291
	(1.487)	(1.600)	(4.348)	(3.000)	(2.372)
Small	-0.689	-1.575	-0.589	7.544**	-4.823
	(3.065)	(3.388)	(7.171)	(3.904)	(3.909)
Medium	-2.060	-0.001	0.429	-0.406	-4.791
	(2.033)	(2.309)	(5.837)	(4.016)	(3.211)
GDP per capita	-0.192	-0.666***	1.663*	-0.254	0.110
	(0.171)	(0.188)	(1.081)	(0.271)	(0.268)
Inflation	-7.966*	-9.132*	46.577*	6.660	3.156
	(5.044)	(6.071)	(25.915)	(9.447)	(7.219)
Growth	26.092	-74.822**	882.661***	-138.894**	-0.004
	(34.324)	(38.857)	(290.950)	(61.602)	(49.250)
Privo	-1.552	4.286	-38.717**	2.171	6.939
	(3.593)	(3.816)	(20.543)	(5.965)	(6.983)
Laworder	-0.996	2.330**	-1.116	1.803	-2.573*
	(0.968)	(1.107)	(2.544)	(2.229)	(1.488)
Common	3.123	-3.327	14.814	-10.410*	-12.156**
	(2.873)	(3.061)	(12.988)	(6.118)	(5.544)
Mcap			5.061		
			(7.596)		
Lambda	-18.049**	-14.906***	43.737	-48.458**	19.058
χ^2	210***	208***	199***	108***	157***
No of obs.	2963	2963	2402	2963	2963

*, **, *** indicate significance levels of 10, 5, and 1 percent respectively.

Table V
Determinants of Financing Patterns: Firm Size

The estimated two-step Heckman model is (1) Access Financing Source = $\alpha + \beta_1$ Government + β_2 Foreign + β_3 Exporter + β_4Subsidized + β_5Manuf. + β_6 Services + β_7 Firm Growth + β_8 Small + β_9 Medium + β_{10} GDP per capita + β_{11} Inflation+ β_{12} Growth + β_{13} Privo*Size + β_{14} Laworder*Size + β_{15} Common + β_{16} Transition + β_{17} Financing Obstacle *Size+ ε , and (2) Financing Proportions= $\alpha + \beta_1$ Government + β_2 Foreign + β_3 Exporter + β_4Subsidized + β_5Manuf. + β_6 Services + β_7 Firm Growth + β_8 Small + β_9 Medium + β_{10} GDP per capita + β_{11} Inflation+ β_{12} Growth + β_{13} Privo + β_{14} Laworder + β_{15} Common + ε. Access is a dummy variable which takes the value 1 for firms that use external finance (or different financing sources) and 0 for those who do not. Financing proportions are the proportion of investment financed externally, by equity, bank debt, operations financing or other sources. External finance is given by sum of bank, equity, operations and other finance. Bank financing includes domestic and foreign bank financing. Operations is given by the sum of supplier credit and leasing. Other sources include money lender, development banks, public sector and other financing. Government and Foreign are dummy variables that take the value 1 if the firm has government or foreign ownership, respectively. Exporter is a dummy variable that indicates if the firm is an exporting firm. Subsidized is also a dummy variable that indicates if the firm receives subsidies from the national or local authorities. Manufacturing and Services are industry dummies. Firm growth is given by sales growth. Size is a vector of dummy variables, Small, Medium and Large that indicate firm size. They take the value 1 if a firm is small (or medium or large) and 0 otherwise. GDP per capita is real GDP per capita in US$. Inflation is the log difference of the Consumer Price Index. Growth is the growth rate of GDP in US$. Transition is a dummy variable for transition countries. Privo is the financial institutions' credit to the private sector divided by Gdp. Laworder is an index (1-6) that takes higher values for legal systems that are more developed. Common is a dummy variable that takes the value 1 for common law countries and zero otherwise. Mcap is stock market capitalization divided by GDP and is included in the Equity Finance equations. Financing obstacle is the general financing obstacle as indicated in the WBES firm questionnaire. They take values of 1 to 4, where 1 indicates no obstacle and 4 indicates major obstacle. Only the relevant coefficients in the access equation are reported for brevity. Detailed variable definitions and sources are given in the appendix.

	Access (external finance)	Access(bank finance)	Access(equity finance)	Access (operational finance)	Access (other finance)
Privo- small	-0.150	-0.180	-1.233***	0.157	0.418**
	(0.161)	(0.157)	(0.294)	(0.158)	(0.173)
Privo- medium	-0.281	-0.399**	-0.356	-0.083	0.560***
	(0.174)	(0.163)	(0.275)	(0.165)	(0.178)
Privo- large	0.140	0.147	-0.387	0.009	0.486**
	(0.227)	(0.204)	(0.309)	(0.197)	(0.210)
Laworder- small	0.052	0.038	0.057	-0.115**	-0.063
	(0.051)	(0.051)	(0.076)	(0.052)	(0.058)
Laworder- medium	-0.001	-0.001	-0.064	-0.112***	-0.028
	(0.047)	(0.043)	(0.063)	(0.056)	(0.049)
Laworder- large	-0.017	-0.061	-0.002	-0.089*	0.037
	(0.061)	(0.055)	(0.078)	(0.056)	(0.060)
Mcap-small			0.426**		
			(0.218)		
Mcap-medium			-0.270		
			(0.233)		
Mcap-large			0.226		
			(0.247)		
Common	0.082	0.210**	0.495***	0.238***	-0.173
	(0.114)	(0.103)	(0.124)	(0.101)	(0.116)
Financing Obst.- small	0.070**	0.049	-0.002	0.004	0.051
	(0.035)	(0.037)	(0.049)	(0.037)	(0.041)
Finan. Obst. -medium	0.091***	0.057*	0.077*	0.041	0.144***
	(0.036)	(0.034)	(0.047)	(0.034)	(0.039)
Financing Obst. - large	0.215***	0.171***	0.140**	0.187***	0.155***
	(0.057)	(0.051)	(0.067)	(0.051)	(0.055)
χ^2	116***	118***	168***	108***	124***
No of obs.	2963	2963	2402	2963	2963

*, **, *** indicate significance levels of 10, 5, and 1 percent respectively.

Table VI
Determinants of Financing Patterns: Institutional Development and Access to External Finance

The estimated two-step Heckman model is (1) Access Financing Source = $\alpha + \beta_1$ Government + β_2 Foreign + β_3 Exporter + β_4Subsidized + β_5Manuf. + β_6 Services + β_7 Firm Growth + β_8 Small + β_9 Medium + β_{10} GDP per capita + β_{11} Inflation+ β_{12} Growth + β_{13} Privo*Size + β_{14} Laworder*Size + β_{15} Common + β_{16} Transition + β_{17} Financing Obstacle *Size+ β_{18} Financing Obstacle *Size*Privo+ β_{19} Financing Obstacle *Size*Laworder+ ε , and (2) Financing Proportions= $\alpha + \beta_1$ Government + β_2 Foreign + β_3 Exporter + β_4Subsidized + β_5Manuf. + β_6 Services + β_7 Firm Growth + β_8 Small + β_9 Medium + β_{10} GDP per capita + β_{11} Inflation+ β_{12} Growth + β_{13} Privo + β_{14} Laworder + β_{15} Common + ε. Access is a dummy variable which takes the value 1 for firms that use external finance (or different financing sources) and 0 for those who do not. Financing proportions are the proportion of investment financed externally, by equity, bank debt, operations financing or other sources. External finance is given by sum of bank, equity, operations and other finance. Bank financing includes domestic and foreign bank financing. Operations is given by the sum of supplier credit and leasing. Other sources include money lender, development banks, public sector and other financing. Government and Foreign are dummy variables that take the value 1 if the firm has government or foreign ownership, respectively. Exporter is a dummy variable that indicates if the firm is an exporting firm. Subsidized is also a dummy variable that indicates if the firm receives subsidies from the national or local authorities. Manufacturing and Services are industry dummies. Firm growth is given by sales growth. Size is a vector of size dummy variables, Small, Medium and Large that indicate firm size. They take the value 1 if a firm is small (or medium or large) and 0 otherwise. GDP per capita is real GDP per capita in US$. Inflation is the log difference of the Consumer Price Index. Growth is the growth rate of GDP in US$. Transition is a dummy variable for transition countries. Privo is the financial institutions' credit to the private sector divided by Gdp. Laworder is an index (1-6) that takes higher values for legal systems that are more developed. Common is a dummy variable that takes the value 1 for common law countries and zero otherwise. Mcap is stock market capitalization divided by GDP and is included in the Equity Finance equations. Financing obstacle is the general financing obstacle as indicated in the WBES firm questionnaire. They take values of 1 to 4, where 1 indicates no obstacle and 4 indicates major obstacle. Only the relevant coefficients in the access equations are reported for brevity. Detailed variable definitions and sources are given in the appendix.

	Access (external finance)	Access(bank finance)	Access(equity finance)	Access (operations finance)	Access (other finance)
Financing Obst.- small	0.143	0.164	-0.305	-0.129	0.224
	(0.160)	(0.165)	(0.246)	(0.166)	(0.190)
Finan. Obst.- medium	0.071	0.016	0.359*	0.043	0.029
	(0.137)	(0.127)	(0.185)	(0.129)	(0.151)
Financing Obst.- large	0.202	0.177	-0.207	-0.117	-0.003
	(0.205)	(0.178)	(0.232)	(0.171)	(0.188)
Financing Obst.- small * privo	0.169*	0.250**	-0.040	-0.031	0.122
	(0.110)	(0.111)	(0.140)	(0.111)	(0.124)
Finan. Obst.- medium *privo	0.270**	0.172*	0.225*	0.074	0.008
	(0.118)	(0.109)	(0.146)	(0.111)	(0.122)
Financing Obst.- large*privo	0.554***	0.503***	0.493***	-0.055	-0.068
	(0.200)	(0.168)	(0.192)	(0.155)	(0.161)
Financing Obst.- small *laworder	-0.030	-0.047	0.067	0.033	-0.048
	(0.038)	(0.039)	(0.055)	(0.039)	(0.045)
Finan. Obst.- medium * laworder	-0.017	-0.005	-0.083*	-0.007	0.026
	(0.033)	(0.031)	(0.043)	(0.031)	(0.037)
Financing Obst.- large *laworder	-0.043	-0.047	0.027	0.082*	0.045
	(0.050)	(0.044)	(0.056)	(0.043)	(0.046)
χ^2	109***	111***	170***	105***	120***
No of obs.	2963	2963	2402	2963	2963

*, **, *** indicate significance levels of 10, 5, and 1 percent respectively.

Table VII
Pecking Order

The estimated model is Pecking Order= $\alpha + \beta_1$ Government + β_2 Foreign + β_3 Exporter + β_4Subsidized + β_5Manuf. + β_6 Services + β_7 Firm Growth + β_8 Small + β_9 Medium + β_{10} GDP per capita + β_{11} Inflation+ β_{12} Growth + β_{13} Privo + β_{14} Laworder + β_{15} Common + β_{16} Transition + β_{17} Financing Obstacle + ε. Pecking order is defined as bank or operations finance =0 or equity finance =1. Firms which receive external finance only from other sources are eliminated. Independent variables are defined as in Table IV. Regressions are estimated using Logit probability model. In columns 2 and 4 Privo, Laworder and Financing obstacles are interacted with size dummies, small, medium and large. In Columns 2 and 4 financial obstacles are interacted with Privo, also for different sizes. Detailed variable definitions and sources are given in the appendix. *, **, *** indicate significance levels of 10, 5, and 1 percent respectively

	1	2	3	4
Government	0.147	0.226	0.150	0.251
	(0.190)	(0.197)	(0.190)	(0.197)
Foreign	0.670***	0.693***	0.667***	0.694***
	(0.148)	(0.150)	(0.149)	(0.151)
Exporter	0.039	0.038	0.032	0.027
	(0.130)	(0.130)	(0.130)	(0.131)
Subsidized	0.070	0.042	0.064	0.033
	(0.172)	(0.174)	(0.172)	(0.175)
Manufacturing	-0.437**	-0.439**	-0.433**	-0.428**
	(0.187)	(0.188)	(0.188)	(0.189)
Services	0.040	0.009	0.040	0.015
	(0.175)	(0.176)	(0.175)	(0.177)
Firm Growth	0.208**	0.204**	0.204**	0.202**
	(0.105)	(0.106)	(0.105)	(0.106)
Small	0.121	1.546	0.093	0.766
	(0.181)	(0.865)	(0.182)	(0.951)
Medium	-0.117	1.097	-0.126	0.399
	(0.160)	(0.779)	(0.160)	(0.866)
GDP per capita	0.079***	0.079***	0.082***	0.084***
	(0.014)	(0.014)	(0.014)	(0.015)
Inflation	0.382	0.361	0.422	0.405
	(0.368)	(0.370)	(0.369)	(0.371)
Growth	7.386***	7.558***	6.932***	6.985***
	(2.621)	(2.639)	(2.634)	(2.651)
Privo	-1.056***		-1.849***	
	(0.315)		(0.525)	
Privo -small		-1.671***		-2.142***
		(0.404)		(0.801)
Privo -medium		-0.881**		-1.583**
		(0.397)		(0.735)
Privo -large		-0.411		-2.689***
		(0.435)		(0.940)
Laworder	-0.074		-0.070	
	(0.088)		(0.089)	
Laworder - small		0.022		0.014
		(0.134)		(0.135)
Laworder - medium		-0.168*		-0.174*
		(0.108)		(0.108)
Laworder - large		0.014		0.036
		(0.136)		(0.137)
Common	0.994***	1.023***	1.029***	1.101***
	(0.211)	(0.213)	(0.212)	(0.215)
Transition	0.769***	0.712***	0.769***	0.725***
	(0.189)	(0.192)	(0.189)	(0.193)
Financing Obstacle	-0.000		-0.110	
	(0.055)		(0.079)	
Financing Obstacle *Privo			0.279**	
			(0.145)	
Financing Obstacle - small		-0.179**		-0.231*
		(0.092)		(0.130)
Financing Obstacle -med		0.087		0.000
		(0.083)		(0.120)
Financing Obstacle - large		0.159		-0.224
		(0.120)		(0.184)
Financing Obstacle - small *Privo				0.132
				(0.243)
Financing Obstacle -med *Privo				0.238
				(0.237)
Financing Obstacle - large *Privo				0.868***
				(0.325)
LR Chi-Sq	175***	192***	179***	200***
No of obs.	1863	1863	1863	1863

Table VIII
Pecking Order - Extensions

The estimated model is Pecking Order= $\alpha + \beta_1$ Government + β_2 Foreign + β_3 Exporter + β_4Subsidized + β_5Manuf. + β_6 Services + β_7 Firm Growth + β_8 Small + β_9 Medium + β_{10} GDP per capita + β_{11} Inflation+ β_{12} Growth + β_{13} Privo + β_{14} Laworder + β_{15} Common + β_{16} Transition + β_{17} Financing Obstacle + ε. Pecking order is defined as bank or operations finance =0 or equity finance =1.in Panel A but as operations finance=0, bank finance=1, and equity finance=2 in Panel B. Firms which receive external finance only from other sources are eliminated. Independent variables are defined as in Table IV. Panel A regressions include four additional variables: Concentration is bank concentration ratio, state-owned is the proportion of banking system owned by the state, corruption is the level of corruption in bank officials, and restrict is a measure of restrictions on bank activities. Regressions are estimated using Logit probability model in Panel A and Ordered Logit model in Panel B. In columns 2 and 4 Privo, Laworder and Financing obstacles are interacted with size dummies, small, medium and large. In Columns 2 and 4 financial constraints are interacted with Privo, also for different sizes. For brevity only the relevant coefficients are reported. Detailed variable definitions and sources are given in the appendix.

Panel A	1	2	3	4
Concentration	-0.017***	-0.017***	-0.017***	-0.019***
	(0.007)	(0.007)	(0.007)	(0.007)
State-owned	0.010*	0.011*	0.010*	0.010*
	(0.006)	(0.006)	(0.006)	(0.006)
Corruption	0.090	0.087	0.089	0.085
	(0.084)	(0.085)	(0.084)	(0.085)
Restrict	-0.158***	-0.163***	-0.162***	-0.168***
	(0.056)	(0.057)	(0.057)	(0.058)
Privo	-0.934**		-2.238***	
	(0.487)		(0.731)	
Privo -small		-1.486***		-2.968***
		(0.586)		(1.196)
Privo -medium		-0.580		-1.645*
		(0.563)		(0.975)
Privo -large		-0.500		-3.029***
		(0.594)		(1.258)
Laworder	-0.332***		-0.333***	
	(0.129)		(0.130)	
Laworder - small		-0.441**		-0.457***
		(0.193)		(0.195)
Laworder - medium		-0.347***		-0.355**
		(0.148)		(0.149)
Laworder - large		-0.257		-0.257
		(0.179)		(0.181)
Common	1.671***	1.738***	1.711***	1.797***
	(0.352)	(0.357)	(0.354)	(0.359)
Transition	0.970***	1.008***	0.982***	1.047
	(0.313)	(0.320)	(0.317)	(0.325)
Financing Obstacle	-0.024		-0.196**	
	(0.072)		(0.100)	
Financing Obstacle *Privo			0.475***	
			(0.193)	
Financing Obstacle - small		-0.281**		-0.450***
		(0.122)		(0.169)
Financing Obstacle -med		0.147		0.008
		(0.106)		(0.149)
Financing Obstacle - large		0.063		-0.343
		(0.152)		(0.231)
Financing Obstacle - small *Privo				0.507
				(0.351)
Financing Obstacle –med *Privo				0.408
				(0.308)
Financing Obstacle - large *Privo				0.964**
				(0.426)
LR Chi-Sq	130***	144***	136***	154***
No of obs.	1121	1121	1121	1121

*, **, *** indicate significance levels of 10, 5, and 1 percent respectively

Panel B	1	2	3	4
Privo	-0.682***		-1.574***	
	(0.237)		(0.427)	
Privo -small		-1.196***		-2.375***
		(0.314)		(0.694)
Privo -medium		-0.616**		-1.050*
		(0.309)		(0.601)
Privo -large		-0.116		-2.236***
		(0.346)		(0.756)
Laworder	-0.055		-0.050	
	(0.066)		(0.067)	
Laworder - small		0.063		0.063
		(0.105)		(0.105)
Laworder - medium		-0.116*		-0.120*
		(0.080)		(0.081)
Laworder - large		-0.039		-0.025
		(0.096)		(0.096)
Common	0.699***	0.720***	0.730***	0.778***
	(0.177)	(0.178)	(0.177)	(0.179)
Transition	0.065	0.012	0.063	0.009
	(0.148)	(0.150)	(0.148)	(0.151)
Financing Obstacle	-0.022		-0.148**	
	(0.045)		(0.067)	
Financing Obstacle *Privo			0.317***	
			(0.126)	
Financing Obstacle - small		-0.138*		-0.293***
		(0.080)		(0.117)
Financing Obstacle -med		0.035		-0.015
		(0.067)		(0.100)
Financing Obstacle - large		0.055		-0.291**
		(0.089)		(0.143)
Financing Obstacle - small *Privo				0.378*
				(0.209)
Financing Obstacle –med *Privo				0.138
				(0.204)
Financing Obstacle - large *Privo				0.837***
				(0.275)
LR Chi-Sq	127***	140***	133***	153***
No of obs.	1863	1863	1863	1863

*, **, *** indicate significance levels of 10, 5, and 1 percent respectively

Appendix Table AI
Number of Firms in Each Country

The data source is WBES.

	Number of Firms
Argentina	72
Armenia	60
Bulgaria	82
Belarus	65
Bolivia	60
Brazil	113
Canada	56
Chile	63
China	52
Colombia	75
Costa Rica	49
Czech Republic	63
Germany	31
Dominican Republic	63
Ecuador	36
Spain	43
Estonia	91
France	32
United Kingdom	43
Guatemala	32
Honduras	29
Croatia	82
Haiti	38
Hungary	66
Indonesia	29
Italy	23
Lithuania	50
Moldova	62
Mexico	29
Malaysia	21
Nicaragua	45
Pakistan	25
Panama	40
Peru	40
Philippines	69
Poland	156
Romania	86
Singapore	65
El Salvador	36
Slovakia	78
Slovenia	97
Sweden	66
Trinidad & Tobago	56
Turkey	103
Ukraine	146
Uruguay	46
United States	32
Venezuela	41

Appendix : Variables and Sources

Variable	Definition	Original source
GDP	GDP in current U.S. dollars, average 1995-99	World Development Indicators
GDP per capita	Real per capita GDP, average 1995-99	World Development Indicators
Inflation rate	Log difference of Consumer Price Index	International Financial Statistics (IFS), line 64
Privo	{(0.5)*[F(t)/P_e(t) + F(t-1)/P_e(t-1)]}/[GDP(t)/P_a(t)], where F is credit by deposit money banks and other financial institutions to the private sector (lines 22d + 42d), GDP is line 99b, P_e is end-of period CPI (line 64) and P_a is the average CPI for the year.	IFS
Laworder	Measure of the law and order tradition of a country. It is an average over 1995-97. It ranges from 6, strong law and order tradition, to 1, weak law and order tradition.	International Country Risk Guide (ICRG).
Mcap	{(0.5)*[F(t)/P_e(t) + F(t-1)/P_e(t-1)]}/[GDP(t)/P_a(t)], where F is stock market capitalizaton, GDP is line 99b, P_e is end-of period CPI (line 64) and P_a is the average CPI for the year	IFC and IFS
Common-Law dummy	Takes value one if origin of the legal system is British, and one otherwise	La Porta, Lopez-de-Silanes, Shleifer and Vishny, henceforth LLSV (1999)
Transition	Dummy variable that takes value one if country is a transition economy, zero otherwise.	
Concentration	The degree of concentration of deposits in the five largest banks	Barth, Caprio and Levine (2001)
State-owned	fraction of banking system's assets in banks that are 50% or more government owned	Barth, Caprio and Levine (2001)
Restrict	measures regulations restricting banks from engaging in securities market activities, insurance, real estate transactions and owning nonfinancial firms. This indicator ranges from 4 (least restricted) to 16 (most restricted).	Barth, Caprio and Levine (2001)
Firm Growth	Estimate of the firm's sales growth over the past three years.	World Business Environment Survey (WBES)
Government	Dummy variable that takes on the value one if any government agency or state body has a financial stake in the ownership of the firm, zero otherwise.	World Business Environment Survey (WBES)
Foreign	Dummy variable that takes on the value one if any foreign company or individual has a financial stake in the ownership of the firm, zero otherwise.	World Business Environment Survey (WBES)
Exporter	Dummy variable that takes on the value one if firm exports, zero otherwise.	World Business Environment Survey (WBES)
Subsidized	Dummy variable that takes on value one if firm receives subsidies (including tolerance of tax arrears) from local or national government	World Business Environment Survey (WBES)
Manufacturing	Dummy variable that takes on the value one if firm is in the manufacturing industry, zero otherwise.	World Business Environment Survey (WBES)
Services	Dummy variable that takes on the value one if firm is in the service industry, zero otherwise.	World Business Environment Survey (WBES)

Agriculture	Dummy variable that takes on the value one if firm is in agriculture, zero otherwise.	World Business Environment Survey (WBES)
Construction	Dummy variable that takes on the value one if firm is in construction, zero otherwise.	World Business Environment Survey (WBES)
No. of competitors	Regarding your firm's major product line, how many competitors do you face in your market?	World Business Environment Survey (WBES)
Firm size	A firm is defined as small if it has between 5 and 50 employees, medium size if it has between 51 and 500 employees and large if it has more than 500 employees.	World Business Environment Survey (WBES)
Financing Constraint	How problematic is financing for the operation and growth of your business: no obstacle (1), a minor obstacle (2), a moderate obstacle (3) or a major obstacle (4)?	World Business Environment Survey (WBES)
Corruption	Corruption of bank officials- Is the corruption of bank officials no obstacle (1), a minor obstacle (2), a moderate obstacle (3) or a major obstacle (4)?	World Business Environment Survey (WBES)
Equity	Share (percentage) of firm's financing over the last year coming from equity, sale of stocks	World Business Environment Survey (WBES)
Bank finance	Share (percentage) of firm's financing over the last year coming from local and foreign commercial banks.	World Business Environment Survey (WBES)
Other finance	Share (percentage) of firm's financing over the last year coming development banks, money lenders, public and other sources.	World Business Environment Survey (WBES)
Operation finance	Share (percentage) of firm's financing over the last year coming from supplier credit and leasing arrangements	World Business Environment Survey (WBES)
External finance	Bank finance + Equity + Operation finance + other finance	World Business Environment Survey (WBES)
Peck	A dummy variable that takes the value 0 if the firm uses bank or operations finance and 1 if it also uses equity finance. Those firms that use only other finance are deleted.	World Business Environment Survey (WBES)
Peck2	A dummy variable that takes the value 0 if a firm uses only operations finance, 1 if it also uses bank finance, and 2 if it also uses equity finance. Those firms that use only other finance are deleted.	World Business Environment Survey (WBES)

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